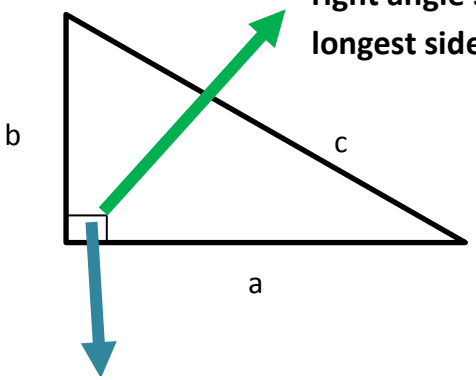
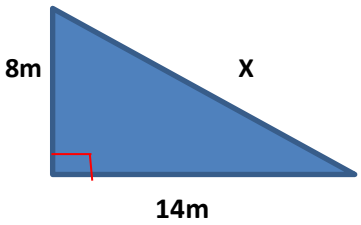
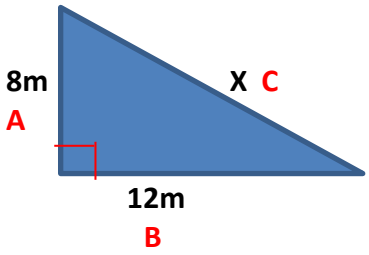
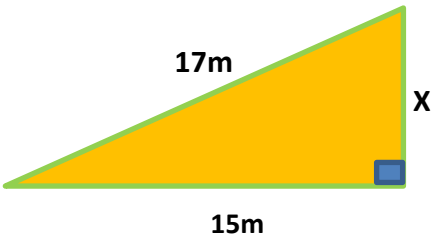
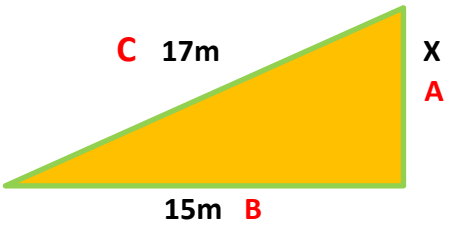
Craigieburn Secondary College

Best Practice #1

AusVELS 9.0-

- Students will be able to use Pythagoras' Theorem to calculate the length of the hypotenuse
- Students will be able to use Pythagoras' Theorem to calculate the length of a side other than the hypotenuse

	Pythagoras Pythagoras is used to solve right angle triangles. Pythagoras theorem is: $c^2 = b^2 + a^2$ **Note:** The legs of the triangle are called a and b and these can be any side (except of course the longest side) of the triangle **C is always across from the right angle symbol and the longest side.**	**C is always across from the right angle symbol and the longest side.**  **The right angle symbol i.e. 90 degrees**
Task:	**Find the length of the hypotenuse.**	
Step 1:	**Label the sides of the triangle.** **C – Is the letter given to represent the hypotenuse**	We know that X is the hypotenuse because it is opposite the right angle symbol. Therefore X is represented by the letter C. 
Step 2:	**Substitute the known values into the standard Pythagoras formula.**	Let a= 8m and b= 14 $c^2 = 12^2 + 8^2$

Step 3:	**Write in factor form and simplify**	$c^2 = 12x12 + 8x8$ $c^2 = 12x12 + 8x8$ $c^2 = 144 + 64$ $c^2 = 208$
Step 4:	**We have determined that** $c^2 = 260$ We want C not C^2. To get c^2=c we need to apply the square root. What we do on one side we must also do on the other side	$c^2 = 208$ $\sqrt{c^2} = \sqrt{208}$ **C= 14.4m**
Task	**Task: Find the length of the short side.** **When finding the short side use the short side formula;** $a^2 = c^2 - b^2$	
Step 1:	**Label the sides of the triangle** **ALWAYS label the unknown side as A**	
Step 2:	**Substitute the known values into the SHORT SIDE FORMULA**	Let c= 17 and let b =15m $a^2 = c^2 - b^2$ $a^2 = 17^2 - 15^2$
Step 3:	**Expand the known values to factor form then simplify**	$a^2 = 17x\ 17 - 15 \times 15$ $a^2 = 289 - 225$
Step 4:	**Now subtract the values**	$a^2 = 64$
Step 5:	**Apply square root to both sides to find a.**	$\sqrt{a^2} = \sqrt{64}$ $\sqrt{a^2} = \sqrt{64}$ **a= 8**

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